CLAIMS

1. A multistage process for the continuous production of an emulsion comprising subjecting at least two immiscible liquids to a sequence of at least two mixing stages carried out in at least two successive stator-rotor devices, in which process:
   - a peripheral outlet from a first stator-rotor device is connected to an axial inlet in the successive stator-rotor device by means of a duct in which the Reynold number Re_T inside said duct is higher than 5000, and
   - the peripheral velocity of each rotor of said stator-rotor devices ranges from 5 to 60 m/s.
2. The process according to claim 1, wherein said emulsion comprises, as a dispersed phase, a molten adduct of magnesium dihalide-Lewis base.
3. The process according to claims 1-2, wherein said emulsion comprises, as a continuous phase, any liquid which is inert and immiscible with said molten adduct of magnesium dihalide-Lewis base.
4. The process according to claim 3, wherein said inert and immiscible liquid is selected from aliphatic and aromatic hydrocarbons, silicone oils, liquid polymers or mixtures of said compounds.
5. The process according to any of claims 1-4, wherein said molten adduct of magnesium dihalide-Lewis base is fed to said first stator-rotor device at a weight ratio of less than 0,5 with respect to said inert and immiscible liquid.
6. The process according to any of claims 1-5, wherein in each mixing stage the residence time is of less than 1 second.
7. The process according to claim 1, wherein the peripheral velocity of each rotor disk is comprised in the range from 20 to 60 m/sec.
8. The process according to claim 1, wherein the Reynold number Re_T inside said duct is higher than 8000.
9. The process according to any of claims 1-8 comprising a sequence of three mixing stages.
10. The Process according to any of claims 1-9, wherein said magnesium dihalide is magnesium chloride.
11. The process according to any of claims 1-10, wherein said Lewis base is selected from amines, alcohols, esters, phenols, ethers, polyethers, aromatic or aliphatic (poly)carboxylic acids.
12. The process according to claim 11, wherein said Lewis base is an alcohol of formula ROH, in which R is an alkyl group containing from 1 to 10 carbon atoms.

13. The process according to any of claims 1-12, wherein a molten adduct of formula $MgCl_2 \cdot mROH \cdot nH_2O$ is used, wherein m=0.1-6.0, n=0-0.7 and R= alkyl group C_1-C_{10}.
14. The process according to claim 13, wherein m=2.0-4.0, n=0-0.4 and R= ethyl group.
15. An apparatus for the continuous production of an emulsion comprising at least two stator-rotor devices, each stator except the last being connected with the successive stator by a duct extending from a peripheral outlet in the first stator to an axial inlet in the successive stator.
16. The apparatus according to claim 15, wherein the initial portion of said duct is oriented in a direction substantially tangential to the circumference of each rotor.
17. The apparatus according to claims 15-16, wherein the end portion of said duct is oriented in a direction substantially parallel to the rotation axes of each rotor.
18. The apparatus according to any claims 15-17, wherein said duct is shaped as a spiral.
19. The apparatus according to any of claims 15-18, wherein each rotor is perforated by one or more holes allowing the emulsion to pass from one side to the other side of said rotor.
20. The apparatus according to any of claims 15-19, wherein the axial tolerance between each rotor and the corresponding stator is from 0.1 to 2.0 mm.
21. The apparatus according to claim 20, wherein said axial tolerance is from 0.2 to 1.2 mm.
22. The apparatus according to any of claims 15-21, wherein the radial tolerance between the circumference of each rotor and the corresponding stator is from 0.2 to 5.0 mm
23. The apparatus according to claim 22, wherein said radial tolerance is from 0.5 to 2.0 mm.